

ABSTRACT OF THE DISCLOSURE

An active balance system is provided for counterbalancing vibrations of an axially reciprocating machine. The balance system includes a support member, a flexure assembly, a counterbalance mass, and a linear motor or an actuator. The support member is configured for attachment to the machine. The flexure assembly includes at least one flat spring having connections along a central portion and an outer peripheral portion. One of the central portion and the outer peripheral portion is fixedly mounted to the support member. The counterbalance mass is fixedly carried by the flexure assembly along another of the central portion and the outer peripheral portion. The linear motor has one of a stator and a mover fixedly mounted to the support member and another of the stator and the mover fixedly mounted to the counterbalance mass. The linear motor is operative to axially reciprocate the counterbalance mass. A method is also provided.